Parfor a Structured Environment for Parallel FORTRAN (Classic Reprint)

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Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****.Excerpt from Parfor A Structured Environment for Parallel Fortran We present an extension to the Fortran language that allows the user to specify parallelism by means of clearly defined, nestable blocks. The implementation achieves compiler-independence through a portable preprocessor. High performance is obtained by prespawning processes and relying on a set of run-time routines to manage a self-scheduling allocation scheme. The resulting system, which we call ParFor, lends itself to the exploitation of fine-grained parallelism because of its low scheduling overhead. It encourages the elimination of explicit process synchronization, thereby enhancing the readability of the source program. In addition, ParFor provides a variety of modes and compile-time options that are useful for performance measurement and debugging. Finally, we present an evaluation of system efficiency including timing results for several parallel applications running on the eight-processor Ultracomputer prototype. 1. Introduction It has been shown that parallel programming can be used to provide significant speedups for a variety of applications. A wide range of architectures has been developed that are capable of multiple-CPU concurrency. Unfortunately, this diversity in hardware...

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